

Long hospital stays and need for alternate level of care at discharge

Does family make a difference for elderly patients?

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OBJECTIVE To determine whether parental and marital status of elderly patients admitted to acute care affect the likelihood of a need for long hospital stay or alternate level of care (nursing home) at discharge.

DESIGN A 1-year descriptive study was carried out prospectively on elderly hospitalized patients. Marital status and parental status were treated as risk factors for resource use, as were sex, age, admitting service, and diagnosis.

SETTING A 672-bed university hospital.

PATIENTS We studied 495 patients aged 65 years or more sequentially admitted over a 1-year period. Excluded from study were critically ill patients, patients admitted to intensive care, and patients with whom we could not communicate on the day they were considered for the study.

MAIN OUTCOME MEASURES Whether acute hospital stay exceeded 44 days and need for alternate level of care at discharge.

RESULTS Many (43.4%) of the patients had no spouse and 19.4% had no children; 32.9% stayed 45 days or more and 6.9% required alternate level of care at discharge. Predictive of a long hospital stay were being without children (adjusted RR = 1.85), having a neurologic or psychiatric diagnosis (adjusted RR = 3.39), and having surgery unrelated to reason for admission (adjusted RR = 5.88). Predictive of need for alternate level of care at discharge were increasing age (adjusted RR = 1.08), having no spouse (adjusted RR = 2.59), having no children (adjusted RR = 3.27), and having a neurologic or psychiatric diagnosis (adjusted RR = 7.56).

CONCLUSIONS Among elderly hospitalized patients, familial status can predict long stays and the need for placement.

OBJECTIF Déterminer si la situation maritale et parentale des patients âgés admis dans des lits de soins aigus influence la probabilité d'un séjour hospitalier prolongé ou d'un niveau alternatif de soins (foyer de soins infirmiers) après le congé hospitalier.

CONCEPTION Étude descriptive et prospective menée pendant 12 mois auprès de patients âgés hospitalisés. Comme facteurs de risque pour l'utilisation des ressources, on a considéré la situation maritale et parentale ainsi que le sexe, l'âge, le diagnostic et le service où le patient était admis.

CONTEXTE Un centre hospitalier universitaire de 672 lits.

PATIENTS Nous avons étudié 495 patients de plus de 65 ans admis consécutivement sur une période de 12 mois. Nous avons exclu de l'étude les patients dont la vie était en danger, les patients admis aux soins intensifs et les patients avec qui nous n'avons pu communiquer le jour où ils étaient assignés à l'étude.

PRINCIPALES MESURES DES RÉSULTATS Durée du séjour hospitalier en soins aigus dépassant 44 jours et besoin d'un niveau alternatif de soins au moment du congé.

RÉSULTATS Beaucoup de patients (43,4 %) n'avaient pas de conjoint et 19,4 % n'avaient pas d'enfant; 32,9 % ont séjourné au moins 45 jours et 6,9 % ont nécessité un niveau alternatif de soins au moment du congé hospitalier. Parmi les facteurs capables de prédire un séjour hospitalier prolongé, notons l'absence d'enfant (RR ajusté = 1,85), un diagnostic neurologique ou psychiatrique (RR ajusté = 3,39) et une intervention chirurgicale non reliée à la raison d'admission (RR ajusté = 5,88). Quant aux facteurs capables de prédire le besoin d'un niveau alternatif de soins au moment du congé, notons l'augmentation de l'âge (RR ajusté = 1,08), l'absence de conjoint (RR ajusté = 2,59), l'absence d'enfant (RR ajusté = 3,27) et un diagnostic neurologique ou psychiatrique (RR ajusté = 7,56).

CONCLUSIONS Chez les patients âgés hospitalisés, la situation familiale peut prédire le besoin de prolonger le séjour hospitalier et le besoin de placement.

Can Fam Physician 1996;42:449-461.

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RESEARCH

Long hospital stays and need for alternate level of care at discharge

ELDERLY PATIENTS STAY LONGER IN HOSPITAL than younger patients; their families are often expected to bridge the gap from hospital to home. Spouses and adult children are important in discharge planning for hospitalized elderly patients.¹⁻³

When patients require alternate level of care at discharge (nursing home or other institutional placement), their families sometimes manage nevertheless to care for them at home, thereby postponing admission to a nursing home or obviating the need for institutional care after hospitalization.⁴⁻⁶ Elderly patients who require a lower level of care at discharge (eg, a boarding home or other non-institutional resource) can also be looked after by family members. In either case, family members become the actual caregivers.⁷⁻¹⁰

Family caregiving, both at home and in institutions, has been extensively studied.⁸⁻¹⁴ Smallegan⁵ showed that most caregivers of the elderly are adult children (65%). Silverstone and Hyman¹⁵ suggest that family caregivers tend to be adult children (daughters) and spouses.

Other studies regarding families of elderly patients describe family involvement in hospital or ambulatory care, the effect of family on clinical outcome, or family stress during or after hospitalization of an elderly relative. However, none of these studies examined whether having a family reduces the risk of having a long stay in hospital or of the need for nursing home placement.^{7,11,16-20}

The notion of family is notably absent from the health care utilization literature. Acute and long-term resource use have been measured in terms of length of stay, bed day use, fixed and variable costs, and admission and readmission rates.²¹⁻²³ Many studies have explored factors contributing to these outcomes, but family is not considered. In addition, family is excluded from the case mix group (CMG) system of the Canadian Institute for Health Information and from the diagnosis-related group system (DRG) of the US Health Care Financing Administration, which confine themselves to diagnosis alone in classifying hospital stays. The DRG system has been criticized for excluding clinical and demographic

indicators in its length of stay formulas and in establishing standards of acute stay.²⁴⁻²⁷ Even studies using a broader range of risk factors for resource use than is afforded by CMG or DRG analysis have failed to include marital and parental status among potentially predictive characteristics.^{21-23,28-32}

The present study was carried out to determine whether lack of family is associated with prolonged hospital stays or with requiring alternate level of care at discharge. Because information about family could usually be obtained on admission, it could be incorporated into the discharge process from the start. If marital and parental status were associated with rate of health care use, these parameters might be used to perfect the diagnosis-driven formulas currently used to predict length of acute stay. Results of this study could be useful to discharge planners, family physicians, and other clinicians who participate in the discharge process.

METHODS

Study site and population

The Montreal General Hospital (MGH), a tertiary care university hospital licensed for 672 beds, was the site chosen for study. The study population consisted of patients aged 65 years or more, admitted sequentially during a 12-month period. Excluded from study were patients with unstable medical conditions that prevented them from being interviewed and patients admitted to critical care. Patients unable to communicate in French or English or via translator available on the day of study entry were also excluded.

The study was undertaken to develop recommendations about data collection at admission and to provide a better patient profile to the department of discharge planning, the admissions and duration of stay committee, the department of social service, and various case management projects.

Data collection

The MGH computerized hospital information system provided the medical record numbers of

all admissions of patients aged 65 and older on a weekly basis. After consenting to participate in the study, patients provided information on their age, their marital status (married or unmarried including separated, divorced, or widowed), whether they had children, and, if so, where those children lived. Parental status was later categorized as one of three groups:

- children near (in the greater Montreal area),
- children far (not in the greater Montreal area), and
- no children.

Data regarding the service of admission (medical, surgical, or psychiatric), date of admission, date of discharge, patient death (in-hospital mortality), and patient requirement for alternate level of care immediately after the acute stay under study were taken from the hospital information system. Length of acute stay was later calculated from admission and discharge dates using dBASE III Plus (Torrance, Calif).

Hospital stays were considered "long" if they reached or exceeded 45 days. This cutoff was selected because the Quebec Ministry Guidelines of April 1993 suggest that acute stay should not exceed 45 days. Patients were considered to require an alternate level of care when formal discharge from acute care did not result in immediate departure from the hospital. These patients remained in hospital and appeared on the hospital business office roster as paying a housing fee in accordance with the standard provincial nursing home rate while awaiting placement. These outcomes are distinct because neither short nor long acute hospital stays are necessarily followed by admission to a different level of care at discharge.

To obtain the International Classification of Diseases (ICD-9) diagnostic codes assigned to each acute hospital stay, the hospital information system was searched using the patient's medical record number and dates of the index admission. Using Canadian database reports specific to MGH (generated by the Canadian Institute for Health Information), ICD-9 codes were then translated into CMG codes. The Canadian

Institute for Health Information system of classification by CMG is similar to the American Health Care Financing Administration classification by DRG.

Case mix group codes were then collapsed into 27 major clinical categories (MCC). Of the 27 MCCs, 21 were represented in the MGH study cohort. These 21 were then collapsed into seven disease or disorder groupings or diagnostic categories, based on physiologic and risk similarities found in preliminary analysis. These seven diagnostic categories are diseases and disorders of the respiratory and cardiovascular systems, digestive system, neurologic system and mental disorders, musculoskeletal and connective tissue, genitourinary systems, surgical procedures unrelated to the original admission, and all others. This last category includes all diagnoses that could not be otherwise assigned: injury; blood-related disorders; burns; infection; and eye, otolaryngologic, and endocrinologic conditions. The services of admission were also redefined as surgery and medicine or psychiatry. Only 11 patients were admitted to the psychiatry service, and their risk characteristics were similar to characteristics among those admitted to medicine.

Data analysis

Outcomes examined were 45-day or longer acute stay and whether patients required care immediately after the admission under study. Independent variables included age, sex, parental status, marital status, service of admission, and the MCC-derived diagnostic categories.

Differences in distribution of proportions were tested by χ^2 statistic for the outcomes of long acute stay and need for alternate level of care at discharge. Frequency distributions were obtained using Statistical Package for the Social Sciences (SPSS) Inc, Chicago, 1990. Both crude and adjusted odds ratios (OR) and 95% confidence limits (CI) were estimated through multiple logistic regression, using MULTLR (Sao Paulo, Brazil, 1988). We also tested for interaction of terms.

RESEARCH

Long hospital stays and need for alternate level of care at discharge

Table 1. Frequency distribution of patient characteristics by acute hospital stay exceeding 44 days and by requirement for alternate level of care

PATIENT CHARACTERISTICS	TOTAL PATIENTS		HOSPITAL STAY (≥45 DAYS)			REQUIRED ALTERNATE LEVEL OF CARE		
	N	%	YES (%)	NO (%)	P VALUE	YES (%)	NO (%)	P VALUE
TOTAL	495	100.0	32.9	67.1	—	6.9	93.1	—
SEX								
Male	246	49.7	33.7	66.3	NS	5.7	94.3	NS
Female	249	50.3	32.1	67.9		8.0	92.0	
AGE CATEGORY								
65-69	145	29.3	31.7	68.3	NS	3.4	96.6	.003
70-74	122	24.6	30.3	69.7		4.9	95.1	
75-79	109	22.0	37.6	62.4		5.5	94.5	
80-96	119	24.0	32.8	67.2		14.3	85.7	
MARITAL STATUS								
Married	280	56.6	30.4	69.6	NS	3.9	96.1	.003
Unmarried	215	43.4	36.3	63.7		10.7	89.3	
PARENTAL STATUS*								
Children living near	331	66.9	30.5	69.5	.042	4.8	95.2	.004
Children living far	68	13.7	29.4	70.6		5.9	94.1	
No children	96	19.4	43.8	56.3		14.6	85.4	
ADMITTING SERVICE								
Surgery	313	63.2	29.1	70.9	.017	3.5	96.5	.000
Medicine or psychiatry	182	36.8	39.6	60.4		12.6	87.4	
DIAGNOSIS CATEGORY†								
Respiratory and cardiology	116	23.4	26.7	73.3	.000	4.3	95.7	.000
Digestive	105	21.2	33.3	66.7		2.9	97.1	
Neurologic and mental	67	13.5	55.2	44.8		23.9	76.1	
Musculoskeletal or connective tissue	95	19.2	17.9	82.1		1.1	98.9	
Genitourinary	38	7.7	31.6	68.4		5.3	94.7	
Other	59	11.9	35.6	64.4		8.5	91.5	
Unrelated surgery‡	15	3.0	66.7	33.3		13.3	86.7	

* Children who lived in the metropolitan Montreal area are classified as living near and those outside the area are classified as living far.

† Diagnosis categories were obtained from the International Classification of Diseases (ICD-9). Discharge diagnostic codes were translated into case mix group codes and then into the major clinical categories (MCC) of the Canadian Institute for Health Information. The 21 MCCs obtained were then collapsed into seven groups according to physiologic and risk similarities.

‡ Unrelated surgeries are those not related to the diagnosis at admission but that took place during the hospitalization period. These are assigned to a separate MCC by CIHI because of their potential for extending hospital stay.

RESULTS

Descriptive analysis

The study population (*Table 1*) consisted of 495 patients, 246 men and 249 women (49.7% and 50.3%, respectively). The group had a mean age of 74.6 years \pm 6.8 (range 65 to 95 years) with the largest proportion (29.3%) in the youngest age category of 65 to 69 years.

The mean length of acute stay for the cohort was 45.0 \pm 35.8 days (range 11 to 269 days); the median stay was 33 days.

Of the entire study population, 280 (56.6%) were married and 215 (43.4%) were unmarried. Most (331 patients, or 66.9%) reported having children living nearby; 68 (13.7%) had children living far away, and 96 (19.4%), almost one fifth of the cohort, reported having no children.

There were 313 (63.2%) surgery service admissions and 182 (36.8%) medicine or psychiatry admissions (171 medicine service and 11 psychiatry service). The largest proportion of the cohort (116 patients, or 23.4%) had respiratory and cardiovascular diseases and disorders, while digestive disorders (105, or 21.2%) and diseases of the musculoskeletal system or connective tissue (95, or 19.2%) accounted for the second and third highest proportions. Almost 10% (49 patients) of the cohort died in hospital.

Approximately 33% of the cohort (163 patients) stayed in hospital 45 days or longer. Approximately 7% (34 patients) of the cohort needed alternate level of care immediately after hospital discharge.

Frequency distribution of outcome variables

Long acute stay. *Table 1* shows the distribution of characteristics of the study population according to the outcome variables. The variables of parental status, service of admission, and diagnosis were found to be associated with long acute stay. More patients with no children had long acute stays than those with children or than those with children living far away ($P=.042$). Patients admitted through a medicine or psychiatry service were more likely to stay longer than patients

admitted through the surgery service ($P=.017$). Patients with unrelated surgery and those with a neurologic or mental disorder were likely to stay longer than patients in other diagnostic categories ($P=.000$).

Need for alternate level of care at discharge. The distribution of characteristics according to whether alternate level of care was required at discharge from hospital was analyzed (*Table 1*). The variables of age, marital status, parental status, service of admission, and diagnosis category were all found to be associated with the need for alternate level of care. Patients aged 80 years or more were approximately three times more likely to require alternate level of care than each of the younger age groups ($P=.003$).

Unmarried patients were more than twice as likely to require alternate level of care than married patients ($P=.003$). Patients without children were approximately three times as likely to require alternate level of care as patients with children living nearby, and more than twice as likely to require alternate level of care as those with children living far away ($P=.004$). Medicine and psychiatry service patients were more than three times as likely to require alternate level of care than surgical patients ($P=.000$). Patients who had neurologic and mental disorders were most likely to require alternate level of care ($P=.000$).

Multivariate analysis

Table 2 lists adjusted relative risks for long hospital stay according to patients' sex, age, marital status, parental status, service of admission, and diagnosis category. Parental status, service of admission, and diagnosis category were associated with long stay based upon confidence intervals in the crude analysis.

Apparent differences seen for service of admission categories were explained by other predictive variables. After adjusting for all of these categories, only parental status and diagnosis category were associated with long stay; adjusted relative risks indicated that having no children is independently associated with long hospital stay (OR 1.85, 95% CI 1.12 to 3.06), as is a neurologic

RESEARCH

Long hospital stays and need for alternate level of care at discharge

or mental diagnosis (OR 3.39, 95% CI 1.76 to 6.54) and a diagnosis of unrelated surgery (OR 5.88, 95% CI 1.81 to 19.04). Interaction of terms was tested and found not significant.

Table 3 lists adjusted relative risks for requiring alternate level of care at discharge, depending on

the patient's sex, age, marital status, parental status, admission service, and diagnosis category. In the crude analysis, age (continuous), marital status, parental status, service of admission, and diagnosis category were associated with need for alternate level of care. Adjusted relative risks

Table 2. Multivariate analysis of relative risks (odds ratios) and 95% confidence limits for acute hospital stay (exceeding 44 days): *Relative risks were adjusted for sex, age, marital status, parental status, service of admission, and diagnosis category.*

PATIENT CHARACTERISTICS	TOTAL PATIENTS		RISK OF HOSPITALIZATION FOR 45 DAYS OR LONGER			
	N	%	CRUDE		ADJUSTED	
			ODDS RATIO	95% CI	ODDS RATIO	95% CI
SEX						
Male	246	49.7	1.0	Reference	1.0	Reference
Female	249	50.3	0.93	0.64-1.35	0.77	0.50-1.18
AGE (CONTINUOUS)	495	—	1.0	0.98-1.03	1.01	0.98-1.05
MARITAL STATUS						
Married	280	56.6	1.0	Reference	1.0	Reference
Unmarried	215	43.4	1.31	0.90-1.90	1.35	0.88-2.06
PARENTAL STATUS						
Children living near	331	66.9	1.0	Reference	1.0	Reference
Children living far	68	13.7	0.95	0.54-1.68	0.99	0.54-1.80
No children	96	19.4	1.77	1.11-2.82	1.85	1.12-3.06
ADMITTING SERVICE						
Surgery	313	63.2	1.0	Reference	1.0	Reference
Medicine or psychiatry	182	36.7	1.60	1.09-2.35	1.20	0.77-1.87
DIAGNOSIS CATEGORY						
Respiratory and cardiology	116	23.5	1.0	Reference	1.0	Reference
Digestive	105	21.2	1.37	0.77-2.44	1.45	0.79-2.68
Neurologic or mental	67	13.5	3.38	1.80-6.37	3.39	1.76-6.54
Musculoskeletal or connective tissue	95	19.2	0.60	0.31-1.16	0.57	0.28-1.16
Genitourinary	38	7.7	1.27	0.57-2.81	1.36	0.60-3.10
Other	59	11.9	1.51	0.77-2.97	1.65	0.83-3.28
Unrelated surgery	15	3.0	5.48	1.74-17.31	5.88	1.81-19.04

Refer to Table 1 for description of independent variables.

showed that the risk of requiring alternate level of care increased with age (OR 1.08, 95% CI 1.02 to 1.15). It was also higher among unmarried patients (OR 2.59, 95% CI 1.12 to 5.98), among those without children (OR 3.27; 95% CI 1.38 to 7.74), and among those with

neurologic or mental disorders (OR 7.56, 95% CI 2.38 to 24.09). Apparent differences seen for service of admission categories were explained by other predictive variables. Interaction of terms was tested and found not significant.

Table 3. Multivariate analysis of relative risks (odds ratios) and 95% confidence limits for requiring alternate level of care: *Relative risks were adjusted for sex, age, marital status, parental status, service of admission, and diagnosis category.*

PATIENT CHARACTERISTICS	TOTAL PATIENTS		RISK OF REQUIRING ALTERNATE LEVEL OF CARE			
	N	%	CRUDE		ADJUSTED	
			ODDS RATIO	95% CI	ODDS RATIO	95% CI
SEX						
Male	246	49.7	1.0	Reference	1.0	Reference
Female	249	50.3	1.45	0.71-2.94	1.03	0.45-2.36
AGE (CONTINUOUS)	495	—	1.07	1.02-1.12	1.08	1.02-1.15
MARITAL STATUS						
Married	280	56.6	1.0	Reference	1.0	Reference
Unmarried	215	43.4	2.93	1.40-6.15	2.59	1.12-5.98
PARENTAL STATUS						
Children living near	331	66.9	1.0	Reference	1.0	Reference
Children living far	68	13.7	1.23	0.40-3.80	1.39	0.41-4.73
No children	96	19.4	3.36	1.58-7.17	3.27	1.38-7.74
ADMITTING SERVICE						
Surgery	313	63.2	1.0	Reference	1.0	Reference
Medicine or psychiatry	182	36.7	3.97	1.89-8.36	1.99	0.79-5.01
DIAGNOSIS CATEGORY						
Respiratory and cardiology	116	23.5	1.0	Reference	1.0	Reference
Digestive	105	21.2	0.65	0.15-2.80	0.93	0.19-4.56
Neurologic or mental	67	13.5	6.97	2.42-20.05	7.56	2.38-24.09
Musculoskeletal or connective tissue	95	19.2	0.24	0.03-2.06	0.18	0.02-1.69
Genitourinary	38	7.7	1.23	0.23-6.63	1.47	0.24-9.02
Other	59	11.9	2.06	0.57-7.41	3.26	0.80-13.33
Unrelated surgery	15	3.0	3.42	0.60-19.41	4.18	0.64-27.20

Refer to Table 1 for description of independent variables.

DISCUSSION

Our data demonstrate that the lack of family, namely spouse and adult children, affects the likelihood of long acute hospital stays and of need for alternate level of care at discharge for elderly hospitalized patients. This is the first study to show that family characteristics predict resource use above and beyond diagnostic indicators.

Long hospital stay

We found that elderly patients without children were almost twice as likely as those with children to need more than 44 days in hospital. To date, studies disagree over how families influence hospital stay. The lack of family has been thought to slow data gathering necessary for completing discharge forms and to delay guardianship proceedings.¹ Family barriers complicate the discharge planning process.²⁰ Programs for the elderly that involve families or provide family support result in shorter stays.¹⁷⁻¹⁹

Although factors contributing to hospital stay were identified in these studies, none showed the relative risk of family factors in comparison to other risk factors for the long stays.

Longer stays among patients with no children could be related to the patient's perception of social support. For example, stroke patients who perceived that they had no support had depression episodes after their strokes lasting 25 weeks longer than patients who perceived a high level of support.³² Perhaps patient perception of family support affects the recovery process. However, a study of Navaho Indians found that family support was associated with long stays due to deteriorated state because caregiving and healing families had delayed getting patients into hospital.³³

We found parental status to be more predictive of long stay than five of the seven diagnosis categories, the two exceptions being unrelated surgery (OR 5.88) and neuromental groups (OR 3.39). Scant literature suggests that unrelated surgery is associated with long stay. Nevertheless, Kominski and Schoenman,³⁴ in a study of DRG validity, found that unrelated

surgery had the highest proportion of stays exceeding the outlier cutoff and ranked sixth highest in patient charges, suggesting that patients in this category consume much of the acute care resources. Interestingly, Kominski and Schoenman³⁴ also found that unrelated surgery was more common in teaching hospitals. Our study confirms that unrelated surgery consumes a large proportion of resources.

Our work confirms that of others: patients with neurologic or psychiatric conditions are likely to have long stays,^{7,35} and diagnosis is an important predictor of hospital stay. This is the case even when the very late universal outlier cutoff of 45 days suggested by the provincial Ministry of Health is used. Rubenstein and colleagues³⁶ suggested availability of social support and functional status be incorporated into case mix classification to improve the predictability of length of stay by DRG. Our study suggests this for the Canadian system as well.

Need for alternate level of care

Our study also shows that the need for alternate level of care at discharge is explained in part by family variables, even when diagnosis is taken into account. Patients without spouses are more than twice as likely to require placement as patients with spouses (OR 2.59), and patients without children are more than three times as likely to require placement as patients with children (OR 3.27). Previous studies of the need for alternate level of care discuss family only in the context of caregiving, and the effect of family caregiving in this literature is controversial. Assistance available from a spouse has been found to predict decreased risk of placement of elderly acute patients.^{3,35} Spouse exhaustion increases the risk of placement for patients with psychogeriatric disorders.¹²

In studies of patients who were placed for care outside the hospital, placement was delayed by daughter, son, and spouse caregivers⁵ or by postacute hospital support programs for caregivers and their elderly family members.⁶ In studies of nursing home discharge, the effect of family is controversial. The presence of kin has

been thought to increase the likelihood of discharge back to the community.³⁷ However, Retsinas and Garrity³⁸ found that the presence of family did not affect nursing home use, suggesting that, once admitted to a nursing home, patients are likely to remain there and that predictive factors, including family, have no effect on discharge from the facility.

Increasing age was weakly predictive of need for alternate level of care, an interesting finding considering that age range was limited to 65 years or older. This finding supports the work of others.^{3,39}

The finding that a neurologic or psychiatric diagnosis increases the likelihood of requirement for alternate level of care also confirms the work of others.^{35,36}

It is interesting to note that many elderly patients do not have spouses (43.4%) or children (19.4%). Some patients' families are unable to take on the burden of care.¹⁶ Some spouses are elderly and frail and cannot care for someone else.¹⁶ Most adult caregivers are daughters. Many work outside the home and are raising families. They experience the difficulties of the sandwich generation, called upon to care for both parents and children.^{4,13}

Implications for family physicians

Family physicians have established expertise in family systems, family care, continuity of care, and community supports. McWhinney has suggested that family physicians, who offer a continuum of care, can formulate diagnoses more efficiently because of their knowledge of medical history.⁴⁰ Our study suggests that knowledge of familial status could make discharge planning more efficient and perhaps shorten hospital stays. Family physicians are most likely to be aware not only of the family constellation before admission, but also of the quality and nature of family relationships, and of the family styles and coping strategies that might facilitate discharge. Where family cannot or should not be encouraged to become caregivers, and for elderly people with no family support, alternative community resources must be sought.

Study limitations

Our study was limited to one tertiary care hospital centre. Using diagnosis-specific outcomes suggests that findings could be confirmed in other settings, regardless of case mix. In community hospitals, however, family physicians are not only consultants in family care but are also likely to act as admitting physicians for elderly patients, as continuing care physicians for patients, and as physicians for all family members. The relative impact of the family physician, the patient's family, and the patient's diagnosis on length of stay in hospitals deserves further study.

Another limitation of our study could be that family risk factors were primarily defined by patients. We think it likely that most patients provided this information accurately. A patient was considered married even if the spouse was hospitalized or in a nursing home. This could lead to underestimation of the effect of having a spouse. If patients not living with their spouses were grouped with unmarried patients, the marital status predictor might be stronger.

Our study does not explain why family factors are associated with hospital stays. We did not determine patient or family expectations that family become caregivers, nor did we determine who actually became caregivers, even temporarily, at discharge. Other factors might affect familial support, such as functional level or financial status of the patient or family; assistance currently being received by the patient (such as housekeeping); sex of the patient, spouse, or adult child; existence of extended family, such as siblings or grandchildren of the patient who might decrease patient reliance on the spouse or adult child; and feelings of filial piety, previously defined.^{14,41} Insofar as it is valid to assume that family as caregivers explain the predictive value of family factors, this limitation of the study would have the effect of underestimating the impact of spouse and children on outcomes.

For each outcome of hospital stay, the relative risks of children living far away from the elderly parent were similar to those of children living nearby; this suggests that the impact of family factors is not confined to the likelihood of assuming

RESEARCH

Long hospital stays and need for alternate level of care at discharge

caregiving roles. For example, it is conceivable that the self-esteem of senior citizens is enhanced by the fact that they have family, and this self-identification as a family member could increase confidence to return home early, even if the adult child lives on another continent or has a poor relationship with the parent, or even if the spouse is institutionalized or also dependent.

Conclusion

Family factors affect resource utilization for elderly hospitalized patients, even when diagnosis is taken into account. Further study is required to refine the predictive value of family status characteristics. ■

Acknowledgment

We thank Ms Suzanne Tremblay, Coordinator of MGH Patient Information Services, and her associate Ms Renée Corriveau for direction and education, permitting us to carry out this study. This work was possible through the generous support of the Drummond Foundation, the Montreal General Hospital, and the McGill Department of Family Medicine.

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TANACET 125

STANDARDIZED CERTIFIED FEVERFEW
DIN 01958704

FOR MIGRAINE PREVENTION

Pharmacology: TANACET 125® contains specially prepared and standardized feverfew leaf (*Tanacetum parthenium*) which is a recognized traditional herbal remedy for several conditions, including the prevention of migraine headache. As with most migraine preventative therapies, the exact method of action remains to be defined; however, clinical trials have demonstrated that the drug reduces the frequency and severity of migraine attacks. Additionally, the drug reduces the severity of migraine associated GI upset (nausea, vomiting).

Although the interrelated role of several biological principals may be important, a sesquiterpene lactone, parthenolide, has been accepted as a biological marker for antimigraine activity of the herbal product. Only a product that has a minimum of 0.2% parthenolide demonstrates a correlation with biological activity. This product is certified to contain 125 mg of feverfew leaf material per tablet with a minimum parthenolide assay equal to or exceeding the 0.2% parthenolide requirement. This differentiates TANACET 125® from other feverfew products.

In vitro studies have demonstrated that parthenolide acts to inhibit the release of serotonin from platelets and white blood cells. The clinical significance of this observation is not presently understood.

Indications: Prophylaxis of migraine.

Precautions: TANACET 125® should not be taken during pregnancy or when breast-feeding. TANACET 125® should not be used for more than four months except on the advice of a physician. Discontinue use if sore or ulcerated mouth develops. Keep out of reach of children.

Adverse Effects: Mild pruritus and occasional mouth sores have been reported in less than 7% of consumers; these reactions promptly cease with the reduction or discontinuation of TANACET 125®.

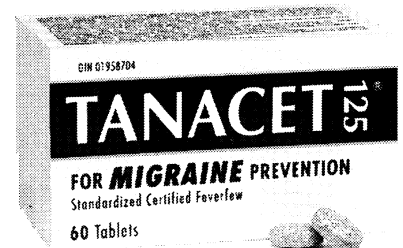
Dosage: Adults, 1 or 2 tablets taken daily 1 hour after breakfast or dinner with water. The use of TANACET 125® beyond four months should be maintained only on the advice of a physician.

Supplied: Each compressed tablet contains: 125 mg of specially selected standardized certified feverfew leaf powder (provides a minimum 0.2% of parthenolide), plus dicalcium phosphate, microcrystalline cellulose, silicon dioxide and vegetable magnesium stearate. Available in packages of 60 tablets.

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